REMARKS/ARGUMENTS

These remarks are made in response to the Final Office Action of 22 July 2008 (Office Action). As this response is timely filed before the expiration of the 3-month shortened statutory period, no fees are believed to be due. However, the Examiner is authorized to charge any deficiencies or credit any overpayments to Deposit Account No. 50-3610.

In the Office Action, the Examiner has rejected Claims 1-2 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pre-Grant Publication No. 2004/0098447 to Verbeke, *et al.* (hereinafter "Verbeke") in view of U.S. Pre-Grant Publication No. 2005/0050382 to Beeston, *et al.* (hereinafter "Beeston").

It is thought that a brief review of the claimed invention will be helpful in presenting Applicant's arguments that the claimed invention is distinguished over the combination of Verbeke and Beeston under this section. The following review applies equally for rejections of other claims not covered by the combination of Verbeke and Beeston alone as all other claims not rejected under this combination were rejected under Verbeke and Beeston in further view of additional references.

Referring to Claim 1, the claimed invention is a manager for a grid computing system. A grid computing system is defined in paragraph 0002 of the Background, and "involves a master computer that assigns portions of a computing task to a plurality of discrete client computers via a network." Examples of grid-based computing can be found in the SETI@home system, cited in rejecting Claims 3, 6, 8-9, and 12-15. Another example of grid computing may be found in U.S. Published Patent Application 2003/0005068 to Nickel, *et al.* (newly cited in an Information Disclosure Statement filed herewith). In the claimed invention, as well as these other examples, a grid computing system works to accomplish a task, and each client (or "slave," as may be alternatively used) performs work on a portion of the task. Verbeke makes mention of the single-task oriented nature of grid computing in paragraph 0012 of Verbeke, criticizing the SETI@home arrangement as being "only applicable to a single application," and that "the framework cannot handle more than one application at a single time." The purpose of grid-based

computing is essentially to replace a "supercomputer" for accomplishing a massive processing task. For that reason, grid-computing is used for "a single application," as stated by Verbeke, because the processing task is so large.

Verbeke was cited for teaching use of a manager in grid computing, citing paragraph 0136, lines 1-12. Verbeke, citing problems with grid computing, and citing the SETI@home system specifically as failing to solve a problem identified by Verbeke, sets forth a peer-to-peer system. Paragraph 0002 of Verbeke states explicitly that Verbeke "relates to peer-to-peer networking, and more particularly to submitting and performing computational tasks in a distributed *heterogeneous* networked environment" (emphasis added). Peer-to-peer computing is well known, and is distinct from master/server-client computing in that peer-to-peer systems have no central controlling computing resource. On that basis, what Verbeke shows is not, therefore, a manager for grid computing. Rather, what Verbeke shows is a peer-to-peer system where de-centralized groups of computers can perform a variety of submitted jobs. Paragraphs 0140 – 0144 describe how jobs are submitted, with tasks being distributed along with code to various worker groups of peers. Paragraphs 0173 – 0252 describe in great detail peers, peer groups, messaging, and so on. Peer-to-peer operation is not master/server – client operation, and Verbeke describes the differences far better than would be appropriate here. Furthermore, Verbeke is a heterogeneous processing system, meaning that different peers are executing different code, depending on the job being worked on at a given peer. Conversely, Applicant's grid computing manager, and that of the SETI@home system, would be characterized as a homogeneous system, where each client is executing the same code, but processing different portions of a given task.

Given, then, that Applicant is claiming a manager for a grid computing system, and Verbeke teaches a peer-to-peer system, and further considering that Verbeke is critical (teaching away from) a manager as claimed by Applicant, it is submitted that Verbeke's dispatch peers would not be read as a grid computing manager as claimed by Applicant. Furthermore, given that Applicant's claimed manager defines a (singular) computing task, whereas Verbeke is a heterogeneous system, it is submitted that Verbeke does not show defining a task as claimed by

Applicant. Additionally, Applicant's claimed invention recites that portions of the computing task are assigned to clients, whereas Verbeke uses peers. Accordingly, given these differences, Applicant submits that Verbeke does not show the claimed limitations for which it was cited.

Beeston was cited as showing approximation of results when a client fails to return a result, citing specifically to paragraph 0056 of Beeston. Beeston describes a system and method to estimate memory size to recover data. It is unrelated to grid computing or peer to peer computing. Beeston cites in 0056 that if an error condition occurs (when writing data to a memory), a process estimates the size of the data block and reserves memory space proportional to the block size estimation. This, although efficient in data recovery, is unrelated to processing data to obtain a result, and then estimating the result when the machine assigned to produce the result fails to do so. Conversely, Applicant's claimed invention estimates results of a processing operation performed by a client which were not received from the client. The distinction is that in Beeston, a processor 120 coupled to a memory 130 by a bus 140 attempts to write a portion of data from a buffer 125 into the memory 130. When that does not occur, a block is reserved of approximately the same size for fault handing. It occurs within a machine, between a processor and memory, and the processor both attempts to do the write, and handle the error. Conversely, Applicant's invention determines when a remote client has failed to process data, thereby generating results, and, at its location, estimates what that result would have been had the client returned the result. Applicant further claims ways which the failure of the client may be determined in Claim 1, none of which are addressed by the Rejection.

In considering the combination of Verbeke with Beeston, Applicant submits that one of skill in the art seeking to solve the problem of clients failing to return results in a grid computing environment, would not be motivated to start with Verbeke. For one, Verbeke is a peer-to-peer system. Second, Verbeke is critical of grid computing systems. Beeston, as shown, does not address the problem of client machines failing to return results, or estimating what results a client would have returned. Instead, Beeston shows a method handling memory write faults within a computer. There would be, therefore, no motivation to combine Verbeke with Beeston in seeking to solve the problem of client machines in a grid computing environment failing to

return results.   Were one to combine these references, one would produce a peer-to-peer computing environment, where peer machines in the network have enhanced memory write fault handling.

Accordingly, Applicant submits that Claim 1 is distinguished over Verbeke in view of Beeston.

Claim 2 inherits all the limitations of Claim 1, and is therefore likewise considered to be allowable over Verbeke in view of Beeston.

Further the Examiner has rejected Claims 3, 6, 8-9 and 12-15 under 35 U.S.C. § 103(a) as being unpatentable over Verbeke, in view of Beeston, and in further view of "SETI@Home, an Experiment in Public-Resource Computing" by D.P. Anderson, *et al.* (hereinafter "Anderson").

This section includes the other independent Claims 6, 12, and 13. Claims 6, 12, and 13 recite substantially similar subject matter as is claimed in Claim 1. The arguments presented with regard to Verbeke and Beeston apply, therefore, equally with respect to Claims 6, 12, and 13. That is, Applicant submits that Verbeke and Beeston, alone or combined, fail to show, teach or suggest the claim elements for which they have been cited. Furthermore, there would be no motivation to combine these references to solve the problem of clients in a grid environment failing to return results, and even if one were to combine them, they would not realize the claimed invention as claimed by Applicant.   With regard to the SETI@home reference, considering that Verbeke was directly critical of the SETI@home system (paragraph 0012), Applicant submits Verbeke is explicitly teaching away from use of the SETI@home arrangement, and therefore combining them would be in appropriate for Verbeke's purposes.

Accordingly, Applicant submits Claims 6, 12, and 13 are allowable over Verbeke in view of Beeston, in further view of Anderson.

Likewise, Claims 3, 8-9, and 14-15, which are dependent claims inheriting the limitations of their respective independent claims, are allowable over the cited art combination.

Finally, the Examiner has rejected Claims 4-5, 7, 10-11 and 16-18 under 35 U.S.C. § 103(a) as being unpatentable over Verbeke, in view of Beeston, in view of Anderson and in further view of U.S. Pre-Grant Publication No. 2002/0038301 to Aridor, *et al.* (hereinafter Aridor).

The claims rejected under this combination are all dependent claims. Their respective independent claims, as argued in the previous sections, are believed to be allowable. The limitations of the independent claims are inherited by the claims rejected here, and the arguments presented in the preceding section with regard to Verbeke and Beeston apply therefore to the claims rejected in this section. Accordingly, Applicant submits that claims 4-5, 7, 10-11, and 16-18 are allowable over the cited references.

CONCLUSION

Applicant has shown how the 35 USC § 103(a) rejections should be withdrawn for reasons elaborated upon above. Applicant believes that the current claims 1-18 are in a condition for allowance, which action is respectfully requested.

The Applicant requests that the Examiner call the undersigned (**561-210-5131**) if clarification is needed on any matter within this Reply, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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